11/14/17 "Motivation gets you started, habit keeps you going."-Jim Rohn

HW: "2017 A2 CC Rational Expressions (Equations)" finish

AIM: How do we solve Rational Equations?

Warm Up:

a] Express in simplest form: $\dfrac{x-4}{4-x}$

$\dfrac{-1}{}$

$= \boxed{-1}$

b] Show how you can rewrite $\dfrac{11x}{6-x}$

$\dfrac{11x}{-x+6} = \dfrac{11x}{-1(x-6)} = \dfrac{-11x}{1(x-6)}$

$= \dfrac{-11x}{x-6}$

✱ we can switch the order of a denominator that has subtraction and then negate the numerator.

HW check

20) $\dfrac{t^{-1}+2^{-1}}{3t^{-1}-3^{-1}} = \dfrac{\frac{2\cdot 1}{2t}+\frac{1}{2}\frac{t}{t}}{\frac{3}{3t}-\frac{1}{3}\frac{t}{t}}$

LCD: $2t$

$\dfrac{2}{2t}+\dfrac{t}{2t}=\dfrac{2+t}{2t}$

LCD: $3t$

$\dfrac{9}{3t}-\dfrac{t}{3t}=\dfrac{9-t}{3t}$

$\dfrac{2+t}{2t}\cdot\dfrac{3t}{9-t}=\boxed{\dfrac{6+3t}{18-2t}}$

1) $\frac{1}{3}+\frac{1}{x}=\frac{1}{2}$ (multiply by $2x$)

LCD: $3 \cdot 2 \cdot x$

$6x$

$x \neq 0$

$\frac{2x}{6x}+\frac{6}{6x}=\frac{3x}{6x}$

$2x+6=3x$

$-2x \quad -2x$

$6=x$

STEPS:

1) Find the LCD (Factor if you need to)

2) Re-write the entire equation so each fraction has the LCD.

3) Solve the numerator equation (Ignore denominator)

4) Check!

2) $\frac{x+9}{2x} + \frac{3}{1} = \frac{15}{x}$ (2x) (2x)

LCD: $2x$

$x \neq 0$

$\frac{x+9}{2x} + \frac{6x}{2x} = \frac{30}{2x}$

$x+9+6x=30$

$7x+9=30$

$-9 \quad -9$

$\frac{7x}{7} = \frac{21}{7}$

$x=3$ ✓

3) $\frac{x-6}{x} - \frac{1}{6} = \frac{4}{x}$ (6x) (6x) (6x)

LCD: $6x$

$x \neq 0$

$\frac{6x-36}{6x} - \frac{x}{6x} = \frac{24}{6x}$

$6x-36-x=24$

$+36 \quad +36$

$6x-x=60$

$\frac{5x}{5} = \frac{60}{5}$

$x=12$

4) $\frac{1}{h+1}+\frac{1}{h-1}=\frac{2}{h^2-1}$

5) Solve for J in terms of F and W.

$$\frac{1}{J}+\frac{1}{W}=\frac{1}{F}$$